

American Vegetable Grower

OCTOBER • 1961

25 CENTS

VARIETIES

• CULTURE

• PACKING

• MARKETING

In this issue

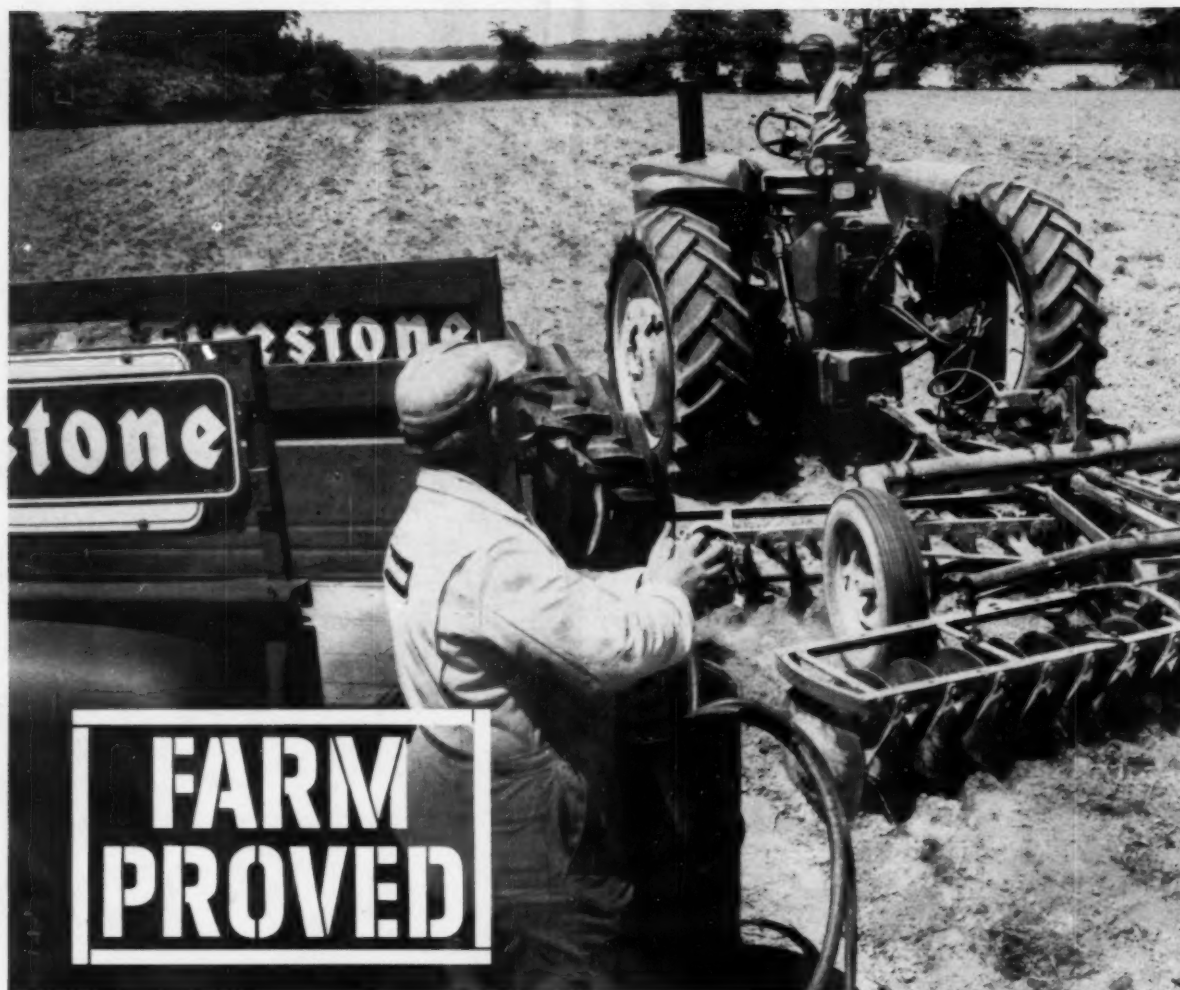
Vegetable areas of Texas

*The vanishing farm
worker*

A popular "compact" tomato



Why Byrd's 20 acres of "sweets" exploded to 600 in a decade



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American Vegetable Grower

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Commercial Vegetable Grower
Market Growers Journal

VOL. 9 No. 10

OCTOBER, 1961



*Kitty and pumpkin cover is by
H. Armstrong Roberts*

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ern Ave. Phone—Main 3-3766.

AMERICAN VEGETABLE GROWER is published monthly by American Fruit Grower Publishing Co., Willoughby, Ohio. E. G. K. Meister, Publisher and Chairman of the Board; Edward L. Meister, President; Richard T. Meister, General Manager; Gilbert Meister, Vice-President. Subscription price \$1.00 per year in U.S. and possessions; to Canada and other foreign countries \$2.00. Single current copies 25c; copies over one year old 75c.

When changing your address, please send us old as well as new; send address label from your last copy; allow 6 weeks for the first copy to reach your new address. Entered as second-class matter at Post Office at Willoughby, Ohio, under the Act of March 1879. Additional entry at Mount Morris, Illinois.

Postmaster: Please send change of address "Form 3579" to AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

AMERICAN VEGETABLE GROWER

JIFFIES PASS the TEST!

Several years ago when we first offered Jiffy-Pots to commercial vegetable growers for starting plants, we were astonished by the favorable reports which we received. We knew they would be useful from experiences which had been reported by florists, but vegetable growers' reports of earlier and greater yields coupled with labor saving were more enthusiastic than we had expected.

Were the reports true?—were they really that useful and practical for commercial vegetable growers?

To find a sure answer to this question, we made arrangements for farm tests of Jiffy culture of several important vegetable crops in different parts of the U. S. Two tests were conducted by universities and two by commercial firms. In all instances accurate records were kept of crop handling, yields, etc.

These tests unanimously confirmed—each in its own way—the practicability of Jiffy-Pots for commercial vegetable culture. Following is a brief description of these tests. If interested in more complete information about them write Jiffy-Pot Company of America. For more information about the use of Jiffy-Pots in vegetable growing, write to Jiffy-Pot Company of America or your local distributor for Tech. Bulletin #10.

GEO. J. BALL, Inc., West Chicago, Ill. A demonstration plot of Jiffy-Planted Tomatoes—variety Urbana—yielded 50% more fruit by weight than Urbana plants flown in from Georgia. Also commercial quantities were harvested 2 weeks earlier on Jiffy-Potted section. Jiffy-Potted Cucumbers produced 3 weeks earlier than direct-seeded. The practical benefit of early yield occurs in connection with the greater availability of help in the early part of the season.

CORNELL. At Cornell University (Ithaca, N.Y.) tests showed consistently greater yields, both early and total, from Jiffy-planted Moreton Hybrid Tomatoes compared with other types of containers, as well as bare root transplants. The Cornell report states, "Using the values obtained in this experiment, one Moreton Hybrid plant would produce Tomatoes worth \$0.70 when grown in 3 inch Jiffy-Pots and \$0.50 when spacing 2 inches in soil without a pot. For 3000 plants per acre, a total value of \$2100 results for the 3 inch Jiffy-Pots compared to \$1500 per acre for the 2 inch soil treatment. However, the marketing factor is not included in these figures. Trucks loaded with Tomatoes were lined up outside the market when the small 2 inch soil block treatments ripened whereas buyers were fight-

ing for Tomatoes at the time the earlier, large container treatments ripened."

TEXAS A. & M. Research workers at Texas A. & M. College, in reporting on 1959 Watermelon tests, stated that plants started in 3 inch Jiffy-Pots protected by hot tents yielded 70% more Melons by June 22 and 47% more for the entire season than the same number of direct seeded plants. Early Melons sell at premium prices. Preliminary reports of 1960 tests confirm their 1959 results with transplant yields of 132% more Melons by June 22 and 80% greater yield for the entire season than the same number of direct seeded plants.

GILBERT BROOKS FARM, Plainfield, Wis. Brooks is one of the leading commercial vegetable growers in Wis. His establishment is often used for testing new materials and methods of vegetable culture. In 1960 Brooks tested Jiffy-Pots on various vegetable crops with significant results. For example, Jiffy-Potted Cucumbers, variety SMR-18, sown in 3 inch Jiffy-Pots May 1, outyielded direct seeded plants sown May 31 by nearly 50%. This increase in yield far outweighed the increased costs of Jiffy-Potting.



Inspecting Tomatoes in Jiffy-Pot demonstration plot at West Chicago, Ill., August 1960.



Picking first bushel of Jiffy-Potted SMR-18 Cucumbers at West Chicago demonstration test.



Texas A. & M. 1959 Watermelon test, started in 3 inch Jiffy-Pots, showed outstanding yields over direct seeding.



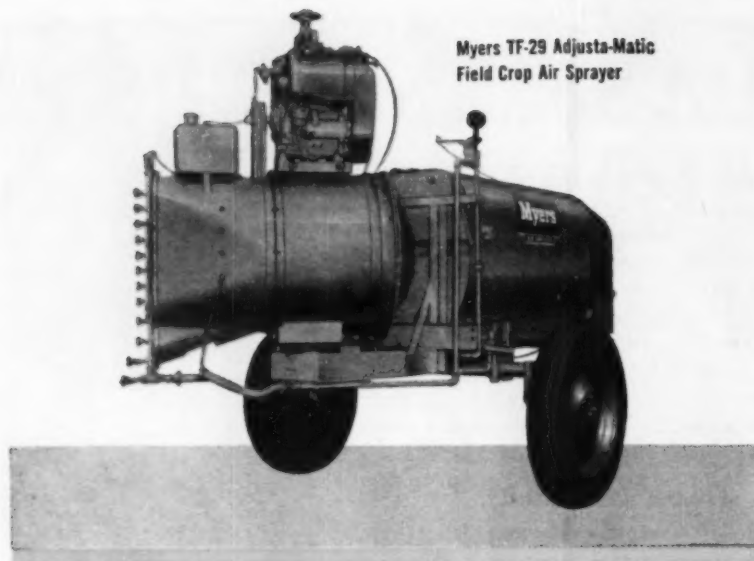
Dramatic evidence of early yielding of Jiffy-Potted Cucumbers at Gilbert Brooks Farm.



*Sold through distributors only—order from them.

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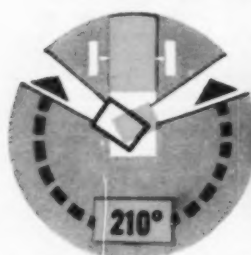
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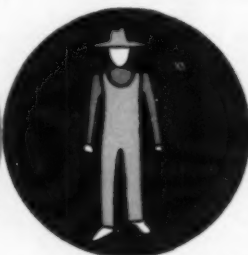
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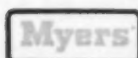
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LETTERS TO THE EDITOR

Cucumber Seeder

Dear Editor:

Since my husband's death I have taken over the managing of our 500-acre farm. I find the planters he used for cucumbers do not plant seeds in hills, but have a tendency to scatter them. It is also hard to control the depth of planting. The Planet Jr. seeders do a good job in depth planting, but they drill only. Can you give me the name of a company that makes a seeder for planting cucumbers?

Dale, S. C.

Mrs. C. S. Mitchell

I have seen field corn which has been "hill-dropped," or "power-dropped," by many of the John Deere planters. I am not aware of any special equipment being used for cucumbers. Most growers use the Planet Jr. seeder, and calibrate in such a way that there is one plant for every 10 to 12 inches. May I suggest that you contact your local equipment dealers, and perhaps write to the Planet Jr. manufacturers, (S. L. Allen & Co., Inc., 5th and Glenwood Ave., Philadelphia 40, Pa.) to see if they have this special equipment.—Ed.

Likes Magazine

Dear Editor:

Please find enclosed my check for a one-year subscription. Recently a friend of mine introduced me to your fine publication for the first time. I must say that I have never been so impressed with any magazine—ever before.

Carnegie, Pa.

Antoinette Zombek

CALENDAR OF COMING MEETINGS AND EXHIBITS

Oct. 29-Nov. 1—National Agricultural Chemical Association annual meeting, The Homestead, Hot Springs, Va.—L. S. Hitehner, Executive Sec'y., 1145 19th St., N.W., Washington 6, D. C.

Nov. 6-7—Washington State Weed Conference, Chinook Motel & Tower, Yakima.

Nov. 13-15—National Potato Council Convention, Hotel Washington, Washington, D. C.—A. E. Mecker, Exec. Dir., 344 Munsey Building, Washington 4, D. C.

Dec. 1-2—National Onion Association annual meeting, Hotel Sherman, Chicago, Ill.—Jack Rose, Exec. Sec'y, East Lansing, Mich.

Dec. 3-7—National Junior Vegetable Growers Association annual convention, Sheraton-Cadillac Hotel, Detroit, Mich.—Grant Snyder, Chairman, Department of Horticulture, University of Massachusetts, Amherst.

Dec. 4-6—Washington State Horticultural Association annual meeting, Liberty Theater, Wenatchee.—Dr. John E. Snyder, Exec. Sec'y, Pullman.

Dec. 8-9—Iowa State Vegetable Growers Association winter meeting, Hotel Hanford, Mason City.—C. L. Fitch, Sec'y, P. O. Box 421, Station A, Ames.

Dec. 11-14—Vegetable Growers Association annual meeting, Muehlebach Hotel, Kansas City.

Dec. 11-14—Weed Society of America's North Central Weed Control Conference, Jefferson Hotel, Memphis, Tenn.—K. P. Buchholz, Pres., University of Wisconsin, Madison.

Jan. 9-10—Texas Vegetable Growers Council annual winter meeting, Produce Terminal Market, San Antonio.—Marcus Dingler, Sec'y-Treas., Box 1292, Pecos.

AMERICAN VEGETABLE GROWER

Byrd's "Sweet" Success

Byrd's acreage in "sweets" exploded from 20 to 600 in less than 10 years. Cause of the explosion? The Nemagold variety and a quality cultural and marketing program

By JOHN G. ROGERS

County Agent, Accomack County, Virginia

"I TRY to shoot for a 400-bushel yield," Carlton Byrd said recently in discussing his favorite crop — Nemagold sweetpotatoes.

Farming near Parksley, in Accomack County, Virginia, Byrd's 20 acres of sweetpotatoes in 1952 had soared to 500 by 1960. He planted 600 acres this year. Unquestionably one of the largest sweetpotato growers in the world, Byrd readily admits that in 1952 he didn't visualize 20 acres mushrooming to 600 in 1961.

Successful storage of sweetpotatoes has fed Byrd's enthusiasm for the Nemagold variety which accounts for 100% of the crop. Careful harvesting, so as not to mar the potato, is a closely supervised job. Harvesting commences when the ratio of prime size to the smaller No. 2 canning size reaches two to one. The conventional two-row turn plow is used in turning out the potatoes.

The sweetpotatoes are placed in bushel baskets, carried to the storage house, properly cured, and held at 55° F. until marketed. Three separate houses were used to store 75,000 bushels from last year's crop. Storage space for 120,000 bushels is planned for this year's crop.

A portion of the crop is sold through fresh market channels. About one-third of the production goes to Eastern Shore processors.

Byrd does his own marketing, selling chiefly to chain store buyers. Sweetpotatoes sold out of storage are washed, graded, waxed, and repacked in bushel baskets. The "Byrd Brand" label is used, a mark of quality often cited by receivers.

Frank W. Bell, Eastern Shore marketing agent, says: "Knowing the quality requirements of some of the buyers that Carlton supplies consistently, it is easy to conclude that the quality of his pack is something to shoot for. Nowadays when we see Byrd's potatoes in Detroit, Cleveland, Indianapolis, and Canada, we know quality put them there."

What is the magic of the Nemagold sweetpotato? Introduced in Accomack County in 1953 under the numbered designation Oklahoma-46 and later named Nemagold, the variety now accounts for 95% of the county's production. It is the highest yielding variety ever grown in this area. Byrd's total yield of Nemagold in some fields has topped the 500-bushel mark.

A "yam" type, the skin of Nemagold is smooth and golden in color;

the roots well-shaped, medium sized, and tapered. The flesh is a deep orange and is moist and sweet when freshly dug.

Sassafras sandy loam soils have given Byrd high yields of quality sweetpotatoes. Plants are produced in hotbeds from seed bedded in early March. For the current year's crop 6000 bushels were bedded. First plant settings are made in early May, using four-row transplanters built by Byrd himself. Transplanting continues through June. Starter solution gives the plants an initial boost. Cultivation is employed to control weeds and grass.

Fertilizer is generally applied as a side-dressing when plants are standing well. Byrd applies 1000 pounds of 3-9-12 per acre. Individual fields are carefully checked each year for plant

(Continued on page 19)



Nemagold, an Oklahoma A. & M. College introduction, accounts for 100% of Byrd's plantings.



Milford Bradley
Byrd's combination packing and storage house. Storage is equipped with hot air heat and air conditioning unit. His 75,000-bushel crop in 1960 had to go in three storages.

THE VEGETABLE AREAS OF AMERICA



Looking over field of new disease resistant spinach variety, Dixie Market, at Frank Schuster farm in Rio Grande Valley are (left to right) Schuster, Paul Leeper, Texas Agricultural Experiment Station, Weslaco; and Harry Meyers, American Refrigerator Transit Company.

By H. C. MOHR

Texas A. & M. College, College Station

DEVELOPMENT of a satisfactory means of transportation—the railroad refrigerator car—early in this century made practical the large scale production of fresh vegetables in areas distant from the centers of population. Many states were quick to exploit this new opportunity to its fullest potential. Texas did not do this, although possessing many areas ideally suited for vegetable production.

Probably the slow development of the commercial vegetable industry in Texas is related to the fact that it already had extensive agricultural enterprises in agronomic crops, particularly cotton, at the time that big-scale commercial vegetable growing became practical.

Despite its slow development, the Texas vegetable industry today produces in excess of \$70 million worth of vegetables annually.

The Lower Rio Grande Valley was the first area of the state to develop intensive commercial vegetable production. Its semi-tropical climate permits production during winter when demand is strong and competition exists with only a few other states.

More than 35 different vegetables are produced and shipped from the fertile irrigated lands of this area

during the fall, winter, and spring months. Climatic conditions do not favor summer production in this southern tip of the United States.

The Winter Garden area, further inland from the Gulf, is not as versatile in number of different vegetables grown as the Rio Grande Valley. Principal crops are onions, spinach, carrots, lettuce, cauliflower, and beets. Most production occurs during the winter months on land irrigated from wells. California Packing Corporation has a large plant at Crystal City which packs over a million cases of spinach annually. Beets and snap beans are also canned at this plant.

The San Antonio area, immediately adjoining the Winter Garden, is more diversified in production because of the presence of the large San Antonio Produce Terminal Market. This market permits growers to dispose of such crops as summer squash, mustard greens, collards, turnips, etc., as well as those vegetables more commonly shipped to distant markets.

The market is used by growers from all parts of Texas, as well as the market gardeners in the immediate area.

The San Antonio area has been an intensive production area probably longer than any other in the state, having been started by a group of

Belgian farmers around the turn of the century. Locally, the area is referred to as the Belgian Gardens. These growers are highly skilled and obtain outstanding yields and quality. They were instrumental in getting the Produce Terminal Market built approximately 10 years ago.

The Coastal Bend area has a large acreage devoted to onions, but much of this is non-irrigated and is planted on wide row spacing to permit later interplanting with cotton. Consequently yields are usually quite low. Spinach and cucumbers have been im-



Airplane dusting is commonly used in Lone Star state to apply insecticides to vegetable crops. Here, onions are being dusted to control thrips.

portant vegetable crops of the area. The 6000 acre Vahlsing Irrigated Farm is in this area.

Houston and Beaumont are primarily market garden areas, producing a wide range of different crops during most of the year. They have well developed produce markets and may grow rather large quantities of specialty items such as the various greens crops, okra, southern peas, eggplant, and summer squash for local markets. Irrigation has not developed extensively as yet.

The large area designated as East Texas is primarily a producer of warm season vegetable crops such as watermelons, sweetpotatoes, southern peas, and until recently, large quantities of tomatoes.

AMERICAN VEGETABLE GROWER

TEXAS

This is the twenty-fourth in a series on the important areas of the United States. Previous issues covered New Jersey, Florida, Eastern Virginia, Arizona, Mississippi, Louisiana, Long Island, Maine, South Carolina, Maryland, Wisconsin, California's Imperial-Coachella, Central and Coastal valleys, the South Coast, San Francisco Bay, and Tulare Basin of California, Indiana, Georgia, Minnesota, Alaska, Oklahoma, Hawaii, Utah, and Massachusetts.



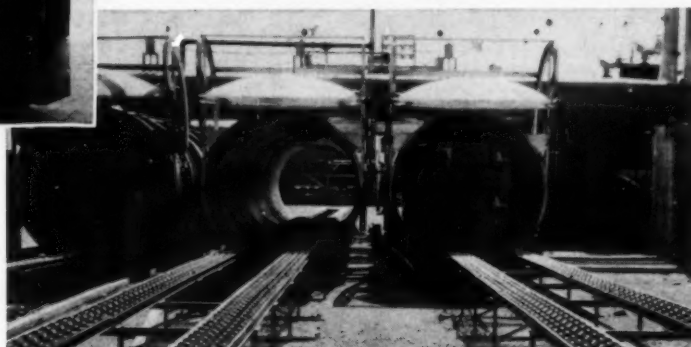
Using forklift truck, worker can easily move 28-bushel wirebound pallet crates of peppers.

The tomato deal, based upon the harvesting of fruit at the green mature stage ("greenwraps") had been very important from around 1915 until several years ago. Competing areas have been able to take over their "market-slot," and production has almost disappeared.

An effort is being made to regain their tomato market by this area, using high quality "pinks" or "breakers." If suitable varieties for this type of production can be developed their prospects of succeeding are good, since soil and climate are favorable.

Athens, Texas, is called the Black-eye Pea Capitol—and large quantities of this type of southern pea are canned here. East Texas is made up predominantly of sandy upland soils that produce high quality sweet-potatoes which are very attractive in external appearance. There is relatively little irrigation in the area.

OCTOBER, 1961



Lettuce is vacuum packed at this plant in Hereford in High Plains area. A similar plant is located in Rio Grande Valley, which produces a large winter crop of lettuce.

North Texas has been important in the production of late spring onions, early summer cantaloupes, and okra. Much of this is on non-irrigated heavy blackland soils which are not suitable for a wide variety of vegetable crops.

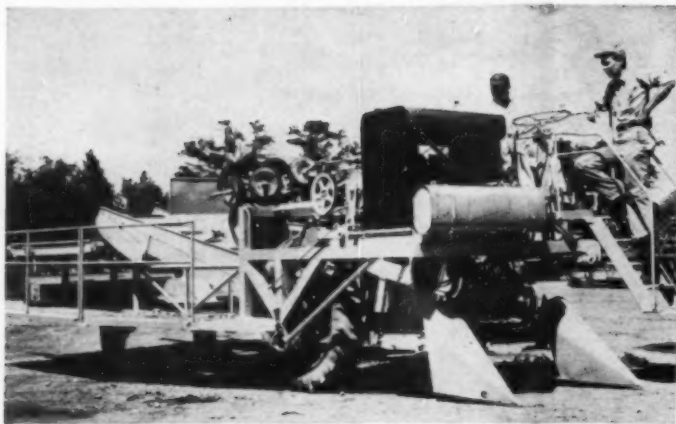
ABOUT THE MAP

A large number of different vegetable crops can be grown in each of the areas shown on the map, but at different seasons. The Lower Rio Grande Valley is most versatile, with approximately 35 different vegetables produced for commercial sale. Most of the other areas produce fewer than 20 different vegetables commercially. The El Paso area is one of the few areas in the U.S. which can successfully produce long staple cotton. Onions and tomatoes for processing are the major vegetable crops in the El Paso area.

table crops. Production of okra seed is important.

The Wichita Valley area has an important Irish potato deal, which has been making rapid progress in recent years. It is centered around the town of Munday. Other crops which have shown promise are cantaloupes and carrots. The growers around Munday have a well organized, progressive growers association which is speeding the development of their industry.

The High Plains of Texas are climatically similar to much of the
(Continued on page 14)



Self-propelled harvester cuts off tomato vines with header blade, then carries them along floating metal belt to top of machine to be placed on rotary shaker.

TOMATOES

Giving 'em the Bumps!

THAT old children's game called "the bumps" is creating a flurry of interest among California tomato growers this year—all because of a new invention.

Robert Ziegenmeyer, of Sutter County, has developed a new tomato harvester that does just that—gives the tomatoes the bumps to shake them loose from the vine.

While its vine pickup and grading operations are similar to several advanced types of tomato harvesters unveiled last season, this new harvester utilizes a unique system of loosening fruit from the vine with a rotary shaker operated on pneumatic tires. Here's how it works:

The self-propelled harvester cuts the vines at ground level with a header blade. They are then raised to working height by a floating metal belt which allows the loose dirt to drop out onto a conveyor that deposits the dirt at the rear of the machine.

A vine is attached manually to

each wheel. The tire carrier then drops over a series of four bumps. The impact loosens the fruit and lowers it gently through the vines onto a rubber belt for passage to the grading table. The vines drop through a hole in the floor of the machine and are laid in a furrow.

As the tomatoes are shaken from the vines they fall onto a rubber belt that moves them to the rear of the machine and deposits them into lug boxes or bins. Because the fruit is carried on only two conveyors, damage to the tomatoes is greatly reduced over harvesters that use a number of conveyors.

Limited use of conveyors also has cut down materially on working parts, reducing the possibility of breakdowns.

The Ziegenmeyer machine has a capacity of 600 boxes per hour. Its approximate operating speed is $\frac{1}{2}$ mph. However, the shaker can be operated at 1 mph. The impact of the rotary shaker can be varied by altering the air pressure in the tires.

Four operators and five or six graders are needed to operate the machine. There is no limitation as to size or type of fruit it can handle—F. Leland Elam.



Vines are hooked on shaker manually. As wheels move clockwise on truck they pass over four bumps, shaking tomatoes from vine. Fruit moves on belt to grading area.

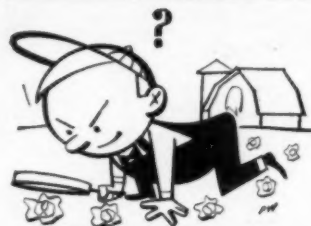
POTATOES

A New Ruling

DO you use sprout inhibitors on your potato crop? A recent ruling by FDA requires that all bags of potatoes be marked accordingly if sprout inhibitors have been used on the crop.

If post-harvest inhibitors are used or if the potatoes are washed in water in which such material is placed to

YOU be the EXPERT!



THE onion plants were yellowed with the youngest leaves most affected. Many were twisted and distorted. The problem was worse at the ends of the field but "sick" plants could be found everywhere.

Al Kayler suspected a nitrogen deficiency but side-dressing and foliar applications of nitrogen failed to help. The pH was 5.8 and the muck soil was well drained. Maneb sprays had been applied at 10-day intervals. What is your diagnosis?

Answer on page 21

inhibit sprouting, the marking on the package should read "..... (trade-name of the material) used to inhibit sprouting."

This ruling applies on consumer-sized packages shipped loose. If they are shipped in master bags, the wording on the master bag is sufficient and the individual packages need not be labeled.

The ruling does not apply to potatoes treated with MH-30, according to the Naugatuck Division of United States Rubber Co. This is because MH-30 is sprayed on potato plants after the tubers are fully formed but before they are dug from the ground.

Copies of the 1961 edition of American Tomato Yearbook are available for \$2 each from American Tomato Yearbook, P. O. Box 540, Westfield, N. J.

HARRIS SEEDS

Have YOU Grown Harris' Famous Tomatoes?



Moreton Hybrid

Harris' MORETON HYBRID. Widely adapted in East, South and Midwest. Large, well shaped fruit. Ripens early on vigorous, indeterminate vines. Firm and meaty with beautiful interior color and superb quality. Outyields standard varieties all season.

1/16 oz. \$2.00; 1/4 oz. \$3.75; 1/2 oz. \$7.00; 1 oz. \$12.75; 1 lb. \$24.00



Cardinal Hybrid

Harris' CARDINAL HYBRID. Now firmly established as a leading midseason hybrid. Big, solid fruit, fine quality and good crack resistance. Maturing a little after Moreton, it is outstanding for its high yields of No. 1 fruit over a full season.

1/16 oz. \$2.20; 1/4 oz. \$4.00; 1/2 oz. \$7.50; 1 oz. \$13.50; 1 lb. \$25.00.

Find out why so many successful growers rate them best — Send for **FREE** catalog today!



Fireball

Harris' FIREBALL. A Harris development and now the foremost extra-early variety in Northern sections. Heavy picks of smooth, round, solid fruit ripens remarkably early on dwarf, compact vines. Ideal for the higher priced early market and as an early canning tomato. Grow the true originator's strain, *Harris' Fireball*.

1/2 oz. 75¢; Oz. \$1.40; 1/4 lb. \$4.50; Lb. \$15.00; 5 lbs. or more @ \$13.00.

OTHER IMPORTANT TOMATOES FROM HARRIS SEEDS

GLAMOUR — High crack resistance, big solid fruit of superior type.

HEINZ 1370 — A new main cropper, uniform, round, medium-sized fruit, very firm, resistant to cracking.

MANAPAL — The newest Florida introduction, described as resistant to graywall, fusarium wilt and some fungus diseases.

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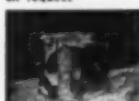
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WRITE

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As It Looks To Me

By **JOHN CAREW**

Michigan State University, East Lansing

AN Indiana farmwife stood in awe as two giant harvesters moved down the tomato-laden rows swallowing whole plants and spitting out vines and green fruit. Peering into the rapidly filling bulk trailer, her skeptical tomato-grower spouse seemed amazed to find whole, uninjured fruit instead of uncanned tomato juice.



"I've seen the missiles fired at Cape Canaveral," she said, "but nothing beats this for sheer drama. My! When I think what this will mean to our tomato farm. . ."

The mechanized tomato harvesting demonstration at Purdue University was just the beginning of a four-day American Society for Horticultural Science meeting jammed with fascinating developments in vegetable and fruit science.

A special session reflected the mounting interest in N-6 benzyladenine, Shell Oil Company's new senescence inhibitor. According to several reports, lettuce, broccoli, sweet corn, and other green vegetables treated with only 10 parts per million of SD 4901 remained greener up to 10 days longer than those not treated. Fortunately for commercial growers, undesirable side effects were not side-stepped; broccoli that disintegrated when cooked, and more fibrous but green asparagus were brought to light. As one research worker cautioned, "Let's not have another gibberellin."

You could sense a friendly spirit of competition when S. K. Ries, K. W. Johnson, and P. A. Minges reported their tomato growing research in Michigan, Indiana, and New York. Each is racing against time to adapt tomato plants to the new mechanical harvesters. Talk of 80,000 plants per acre, population pressures, and bulk handling may have stunned older tomato growers but it indicated the "orbital" thinking in vogue.

The papers on incompatibility in asparagus, broccoli, watermelons, and sweetpotato could have caused an outsider to reflect that plants have as many troubles as people. But a plant breeder's inability to make certain crosses between desirable parents is a serious roadblock to the development of new varieties.

George K. Raleigh, of New York, described the new lettuce variety

Oswego as being four to six days earlier than Great Lakes 659 and more resistant to bolting and brown rib. It came from a cross between Empire and 456. Results in New York and Michigan have been favorable; approximately 2000 pounds of seed will be available for 1962 plantings.

Pickle packers will be interested in the work of McCombs and Winstead, of North Carolina, who studied methods of controlling shipping diseases of pickles. The cottony leak disease responsible for high losses during periods of hot weather will not be a problem if pickle temperatures are below 60°. Apparently when daytime field temperatures are running near 95°F., truck refrigeration systems do not have the capacity to remove field heat sufficiently. Hydro-cooling removed field heat rapidly and greatly reduced transit diseases without impairing the quality of the pickles.

Many research workers presented data with apparently little immediate practical value. They seemed to be probing the inner workings of plants and their surroundings rather than solving specific field problems.

This is the basic research we need to maintain our agricultural position. As Frank Horsfall, of Connecticut, so well stated it, "Our best weed killers came from the work of a few men seeking to learn why plants grow toward the light." THE END.

ASGROW EXECUTIVE DIES

MERRITT CLARK, retired vice-president for marketing of Asgrow Seed Company, died recently in Milford, Conn. He had retired in June, after 37 years of service with the company. He was a former president of the A.S.T.A., World War II head of the Seed and Rice section of O.P.A., and had been instrumental in the steady growth of Asgrow.

TIPS ON TRUCK CARE

A HELPFUL handbook on the care of trucks, regardless of make or model, has just been published by Ford Division's Truck Marketing Department. This 96-page digest-sized book, *Guide to Cutting Truck Costs*, is liberally illustrated and covers a wide range of subjects—from truck care to highway emergency information, and from safety tips to gas mileage secrets. Copies are available, free, from Ford dealers.

AMERICAN VEGETABLE GROWER

MELONS

The Cantaloupe Story

DID you know that cantaloupe flowers are receptive to pollination only between 7:00 and 9:00 in the morning? That's just one of the interesting facts about cantaloupes recently discussed by Dr. Thomas M. Little, extension vegetable crops specialist, University of California, Riverside.

Not only are the flowers receptive to pollination just two hours a day but a high number of pollen grains are required for every flower. Every seed needs one pollen grain; and an average cantaloupe contains 400 to 600 seeds. Size of the fruit depends on the number of seeds. If there are fewer than 400 seeds the fruit is generally cull.

Insects are a "must" for production of fruit because the pollen cannot be carried by wind. Generally, one good colony of bees per acre is recommended.

In fertilization tests conducted in California, five times as much phosphorus was required when applied broadcast as the amount needed in band application to produce the same results.

In the tests neither nitrogen nor phosphorus was found to have any effect on sugars. Effect on the size of fruit was minor, but the total number of fruits and rate of maturity were greatly affected by both of these nutrients.

HAVE YOU READ . . .

Strawberry Culture: Eastern United States. A general discussion of training systems, varieties, care of planting stock, soil preparation, and cultivation. Copies of Farmer's Bulletin No. 1028 are available for 10 cents each from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Salvaging Tomatoes from Frozen Vines, by Lacy P. McCollach. Report of studies made at Beltsville, Md., in 1956, '57, and '58, of frost and freezing damage to tomatoes, what symptoms to look for, how to handle, and how to determine the salvageability of the fruit. Ask for Marketing Research Report No. 423, available from Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C.

Effect of Heavy Loading on Quality of Sebago Potatoes Shipped by Rail from Florida. Discussion of a study made as part of a broad program of research designed to reduce marketing costs. The freight cost per hundredweight decreases as the size of the load increases. Results of the tests indicated that the slightly greater bruising in heavier loadings—up to 50,000 lbs. per car—was not enough to offset the savings in shipping charges. Bulletin No. AMS-441, is available from Market Quality Research Division, Agricultural Marketing Service, U. S. Department of Agriculture, Washington 25, D. C.

OCTOBER, 1961

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● 4 inches	500 to 4,500	500	\$29.75M	32#	\$29.75M	32#
	5,000 to 12,000		\$28.25M			
	3 inches	1,000	Square	37#	Round	25#
● 3 inches	1,000 to 9,000	1,000	\$18.90M		\$14.90M	
	10,000 to 24,000		\$17.95M		\$14.15M	
	2 1/4 inches	2,000	Square	36#	Round	29#
● 2 1/4 inches	2,000 to 28,000	2,000	\$18.50M		\$8.50M	
	30,000 to 72,000		\$10.25M		\$8.20M	

NEW!!! Lower Cost THINLINE

	3 inches	1,000	Square	34#	Round	25#
● 3 inches	1,000 to 9,000	1,000	\$16.00M		\$13.30M	
	10,000 to 24,000		\$13.35M		\$12.65M	
	2 1/4 inches	2,500	Square	32#	Round	25#
● 2 1/4 inches	2,500 to 27,500	2,500	\$8.40M		\$7.50M	
	30,000 to 72,500		\$8.00M		\$7.15M	
	1 1/4 inches	3,000	Square	30#		
● 1 1/4 inches	3,000 to 27,000	3,000	\$7.20M			
	30,000 to 72,000		\$6.65M			

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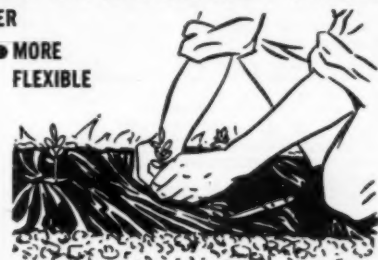
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AMERICAN VEGETABLE GROWER, published monthly at Willoughby, Ohio for October 1, 1961.

1. The names and addresses of the publisher, editor, managing editor, and business managers are Publisher, American Fruit Grower Publishing Company, Willoughby, Ohio; Editor, R. T. Meister, Willoughby, Ohio; Managing Editor, None; Business Manager, Edward L. Meister, Willoughby, Ohio.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

American Fruit Grower Publishing Company, Willoughby, Ohio, E. G. K. Meister, Willoughby, Ohio; Elsie K. Meister, Willoughby, Ohio; Edward L. Meister, Willoughby, Ohio; R. T. Meister, Willoughby, Ohio.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there

are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the names of the person or corporation for whom each trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which the stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue) 58,567.

EDWARD L. MEISTER,
Business Manager

Sworn to and subscribed before me this 15th day of September 1961.
(Seal) E. P. JEANGUENAT, Notary Public.
(My commission expires Sept. 17, 1962)

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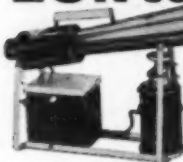
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14

TEXAS

(Continued from page 9)

south central area of the United States, with a summer growing season extending into the fall when harvest is terminated by the occurrence of frost. Since frost does not occur, as a rule, until late October or early November, this area is able to produce vegetables for harvest in the fall before the production of the Winter Garden and Rio Grande Valley has attained much volume.

Irish potatoes, onions, and carrots are other major crops of this part of Texas. Tomatoes produce excellent yields, often exceeding 20 tons per acre. They start maturing late in August and will produce until frost. The major use is for processing. Cucumbers for pickling have produced exceptionally well in this area, and much of the production of this crop has moved from East Texas to the High Plains area in recent years because of this.

The High Plains is a relative newcomer among Texas vegetable areas. The Santa Fe Railroad, which is the main shipping line out of this territory, estimated that carload movement of vegetables had expanded from 53 cars (or equivalent) in 1940 to nearly 5000 by 1958. There are over 4 million acres of irrigated land in this area, most of it devoted to cotton, small grains, alfalfa, and grain sorghum.

A substantial portion of this land is potentially suitable for vegetables, possibly as much as the total U. S. acreage devoted to commercial vegetable crop production today. Many vegetable crops can be successfully produced in the High Plains which are not being grown commercially at present because a satisfactory market outlet for them has yet to be established.

The Pecos Valley has long had an enviable reputation for the superb quality of cantaloupes produced in its arid climate. Recently some phenomenal yields of tomatoes and other vegetables have been attained on the irrigated land near Dell City, adjacent to the New Mexico state line.

The Red River Valley has had some commercial production of tomatoes in the past but this deal, which was a continuation of supply of green-wrap tomatoes following East Texas, has also largely disappeared. They also have produced pickling cucumbers, but much of this production has been taken over by the High Plains area.

Many other vegetable crops can be produced in good quantity and quality, but have not been because of a lack of markets. The climate is suitable, and thousands of acres of fertile

river bottom land could be profitably used in vegetable production in this valley.

Much interest has been aroused by the announcement of the Campbell Soup Company that they were constructing a multimillion dollar plant at Paris, Texas. The stimulus of the demand for vegetables by this new industry may trigger a considerable development of vegetable growing beyond the needs of the Campbell plant.

The Brazos Valley is also an area of many thousands of acres of fertile river bottom soils. It is presently a major cotton producing section, but farmers have been making large scale exploratory plantings of Irish potatoes, carrots, snap beans, onions, and other vegetables over the past few years and have been able to obtain some excellent yields and quality.

Climatically this area offers the unique potential of growing vegetables the year around. To the south of it the summers become too hot, and to the north the winters are too cold for this year around production. Texas A. & M. College is located in this area and research of the Texas Agricultural Experiment Station at College Station has established the

Value of commercial fresh market vegetable crops produced in Texas in 1960.* Only those exceeding \$1 million in value are listed. Total value of all vegetables produced in the state in 1960 is of more than \$70 million.

Onions	\$12,120,000
Lettuces	8,096,000
Irish potatoes	7,454,000
Watermelons	5,444,000
Sweetpotatoes**	5,128,000
Cabbage	4,408,000
Spinach	4,048,000
Cantaloupes	3,697,000
Carrots	2,709,000
Peppers	2,371,000
Cauliflower	1,377,000
Broccoli	1,355,000

* Figures taken from the annual Summary, Texas Commercial Vegetables, Texas Crop and Livestock Reporting Service, AMS, USDA

**1959 figure (1960 not available)

feasibility of producing the cool season vegetables, such as cabbage, cauliflower, broccoli, onions, etc., in the winter, and warm season crops such as watermelons, sweetpotatoes, tomatoes, southern peas, okra, etc., during the spring and summer.

Of the areas discussed, the High Plains, Red River Valley, and Brazos Valley have the potential of greatly expanding the acreage of vegetable production in Texas. There is still suitable land for expansion in most of the established areas. There is also much opportunity for improvement of yields and efficiency in production of present acreage.

Considering these factors, the motto of the newly formed Texas Vegetable Growers Council, "A Potential to Feed the Nation," is not an exaggeration.

This potential is due not only to the vast areas of suitable land, but to

(Continued on page 19)

MARKETS...

TRENDS AND FORECASTS

Special Report

AMERICAN VEGETABLE GROWER, OCTOBER 1961

PRESENT GOVERNMENT POLICY AIMED AT MAKING AGRICULTURE MORE POWERFUL. This is the plan particularly in the area of marketing. Farmers must have bargaining power in the market place to compete with big chains, distributors, processors, and manufacturers. Present plans are to give them this opportunity and push them into it if necessary.

FRUIT AND VEGETABLE PRODUCERS ARE IN A GOOD POSITION TO TAKE ADVANTAGE OF THE CHANGING POLICY SITUATION. Because of existing marketing order legislation and agencies plus experience in many areas with orders and agreements, fruit and vegetable producers can move ahead to improve their bargaining power more easily than some other parts of agriculture can.

CALIFORNIA LETTUCE GROWERS LIMIT OUTPUT. Because they produce almost 75% of the summer crop, California growers were able to raise prices and improve returns through their marketing order. By planting 20% less, and then plowing under another 20% of their crop, prices were increased about 75 cents per carton over the year before. It is important to recognize that an area must control a substantial part of the production to make this work.

FARM OUTPUT INCREASES. From 1950 to 1960 farm production increased 2.5% annually while our national population increased 1.8% per year. Improved technology enabled farmers to produce more.

AMERICANS EAT MORE VEGETABLES. According to a recent USDA report the average American is consuming 15% more vegetables than 50 years ago. City people consume more vegetables than rural people and higher income families use more than those with lower incomes. Looking ahead, the USDA thinks that per capita use of vegetables and potatoes may not change much in the next 10 years.

BIG REVOLUTION COMING IN PROCESSED POTATOES. Research workers predict instant potato salad, frozen baked potatoes complete with sauce toppings, and other big developments soon. Consumers in the U.S. spent \$24 million more for processed forms of potatoes last year than they did for fresh potatoes. An important note to growers: Increased processing will stabilize prices but tend to put the potato in the same category as other processing crops. This means a modest but dependable per acre return from year to year.

PROCESSED VEGETABLE SITUATION. Indications are that total production of vegetables for processing will be moderately larger than last year with all items showing an increase. The canned pack will likely be larger but, because of reduced carryover, supplies of canned vegetables in 1961-62 are expected to be only slightly above those of last season. An increased pack combined with larger carryover stocks, is likely to result in frozen supplies being materially larger.

OCTOBER, 1961

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Sprinklers better
engineered than these!



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*Sprinklers which
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Assure lush fruit
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RAIN BIRD sprinklers are engineered for fruitful irrigation with a minimum of care and maintenance. Both over-tree models and under-tree sprinklers are designed for scientific water penetration of soil without waste or soaking.

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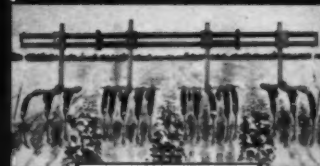
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STATE NEWS

TEXAS

Action!

THE directors of the newly formed Texas Vegetable Growers Council held their first annual board of directors meeting in late July. Seven of the 10 area councils were represented.

The directors approved charter member certificate awards for more than 70 members. It was hoped that the charter membership would exceed 100.

Principal emphasis at the meeting was given to methods and procedures for enlisting members in the new organization. Henry Van De Walle, president, appointed a committee to develop a promotional type brochure that would outline the aim, purpose, and facts to prospective members.

Van De Walle stated that he would like to see every commercial vegetable grower of Texas become a member of the Texas Vegetable Grower Council. He said that success of this organization will be directly related to the number of members in each area council.

January 9, 1962, at the Produce Terminal Market, San Antonio, was set as the time and place for the next annual membership meeting. As a sidelight, the directors approved subscription to **AMERICAN VEGETABLE GROWER** for each bonafide member of the organization. Fees for this subscription are to come from the state dues.

GEORGIA

M.O. No. 4!

BY a vote of 396 to 42, sweetpotato growers voted to set up Marketing Order No. 4 in the state.

Dr. Silas A. Harmon, head of the horticultural department of Coastal Plain Experiment Station, and secretary of Georgia Sweetpotato Improvement Association, said the state has about 600 commercial growers who plant 15,000 acres of sweetpotatoes.

The marketing order went into effect August 1, and is being financed by an assessment and levy of 2 cents per bushel on all sweetpotatoes produced in the state.

In accordance with the Agricultural Commodity Act, the program is being administered by a sweetpotato commission of growers. Members are: Harry Lutz, Albany, chairman; Gene Adams, Norman Park; Gibbs Patrick, Omega; W. T. Mayfield, Cairo; and W. J. Aultman, Macon.

The scope of operation under the new marketing order will be research, promotion, education, and establishing quality sweetpotato grade standards.

CALIFORNIA

Smoothing Out the Bumps

THE plastic greenhouse tomato growers of San Bernardino County recently formed a Tomato Growers' Association. Through such group action they hope to smooth out the production-to-salad road for the tomato.

Bob Bishop, Redlands tomato grower, is head of the new organization. Bishop's philosophy, based on his years in vegetable production and marketing, is summoned up briefly as follows: The association can help the growers only if its members give it their full support, and work together. Every producer has a stake in his product, and is dependent upon satisfied customers for the success of his business.

ARIZONA

Fast-Growing

THE state's potato industry is growing so fast that it will soon equal the economic value of the Arizona citrus crop. So says Dr. Norm Oebker, University of Arizona extension horticulturist. Value of potatoes

to the state's economy is now rated at \$8 million. In 1960, slightly more than 10,000 acres were grown commercially.

The demand for potato chips has influenced the tremendous growth in acreage planted to the Kennebec variety. The acreage jumped 77% from 1959 to 1960.

HAWAII

All They Can Eat

GEE CHONG Wong and his son, Donald, have 14 acres of watermelons near Waimanalo. Yield this year was 15,000 melons totaling about 140 tons. And the Wongs grew 20 melons weighing almost 100 pounds.

It was only natural that the "Watermelon Kings of Hawaii" would go all out to give some 300 underprivileged children from Kalihi a fabulous treat—all the watermelon they could eat!

WISCONSIN

A Success Story

IN just three short years the Antigo Potato Growers, Inc., has developed into such a successful grower organization that the group has purchased a potato warehouse, built at an original cost of \$100,000.

The 300-foot long warehouse and processing plant is about 10 years old. It was the first warehouse in Wisconsin to use the water flume method for washing and packaging potatoes.

Antigo Potato Growers, Inc., is a modified co-operative. Each member has one vote for every 50 acres with a maximum of five votes per member. Dollar sales exceeded \$2 million last year.

PACKAGING & MARKETING

A Popular "Compact"

IN 1958, Herco Sales Co., of El Centro, Calif., shipped less than 200 flats of cherry tomatoes. Each flat contained 12 pint baskets.

The popularity of this "compact" tomato has grown by leaps and bounds. Demand has increased Herco's business so greatly that the company now packs about 2000 flats a day at their Niland, Calif. packing shed. One local grower had 100 acres in cherry tomatoes last year.

The fruit arrives in field boxes and is dumped on the sorting elevator where a crew separates it according to pinks and ripeness. The sorted fruit then passes through the sizer, a series of rubber belts through which the fruit falls, according to size, directly into lug boxes, each fitted with 12-pint wood

vener baskets. After liddings the flats are ready for shipment to eastern markets.

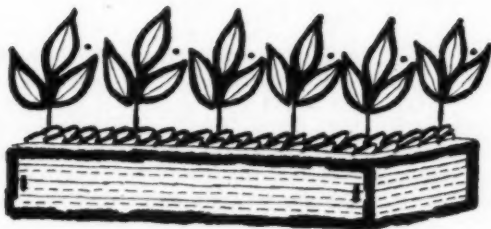
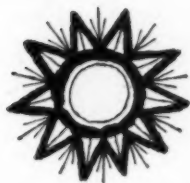


Herco packs about 2000 lugs of cherry tomatoes daily. Sorted fruit passes through sizer directly into lug boxes fitted with 12 pint baskets.

AMERICAN VEGETABLE GROWER

From Planting to Packing

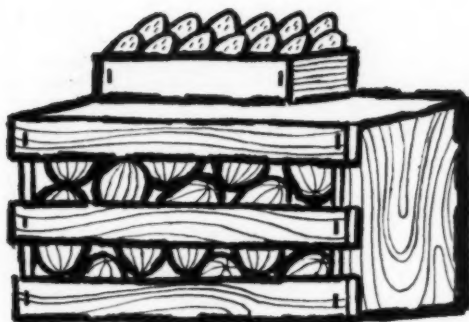
BOSTITCH SAVES YOU MONEY ALL THE WAY



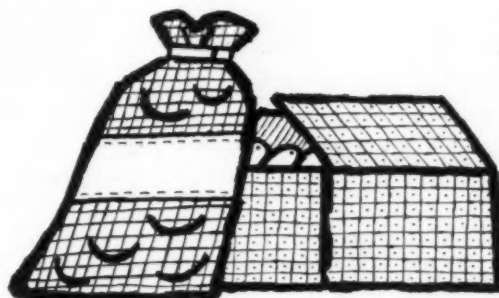
Growing Seedlings—Truck farmers cut down fruit boxes and reassemble them as "flats" to grow seedlings. Assembly is three times faster, "flats" are more secure.



Trellising—Stapling attaches trellis wires to posts for growing tomatoes—three times faster than other methods. Tackers stay on job under heavily dusty conditions.



Packing—Wooden crates assembled with Bostitch result in time savings up to 30%. Stapling is neater, more secure for undamaged arrival at destination.



Closing produce bags with Bostitch Staples is ten times faster than tying. **Corrugated cartons** staple-sealed provide better protection for produce and lower shipping costs.

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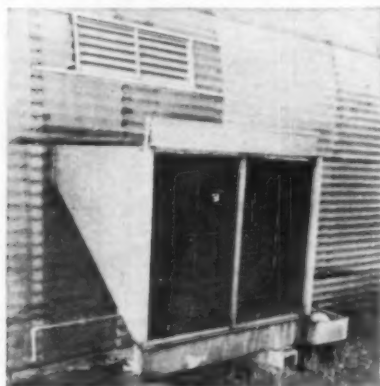
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STAPLERS AND STAPLES

See your Bostitch representative for the facts on how to save time and money in all your fastening operations. He's listed in the Yellow Pages.

A Greenhouse "Must"

We have been more than pleased with the Aprilaire humidifier we put in our model home last year. It has worked like a charm. Thus, we would certainly recommend one for your home, too. But they manufacture another unit which will interest you, and that's a water panel for greenhouse cooling. Pictured is an experimental plastic greenhouse, 8 x 40 feet, at the University of Wisconsin showing two 21 x 35 x 2-inch Research Products water panels. These panels give over



60,000 Btu's of cooling per hour (over 5 tons) and have required no maintenance or replacement since their installation four years ago. The greenhouse is cooled by air drawn through moist ceramic-coated aluminum water panels. The cool, moist air is pulled into the greenhouse by fans which also circulate the cooled air. These fans, a part of the heating unit, force air through an underground duct opening into 3 x 24-inch floor vents around the perimeter of the structure. In summer, air is drawn from outside through the moist water panels; in winter, recirculated air is passed over steam coils within the heating unit. Warm air is exhausted in the summer through back-pressure dampers. Here's an item well worth your thorough investigation. Ask Floyd W. Carlstrom, Research Products Corporation, 1015 E. Washington Ave., Madison 1, Wis., to tell you all about these water panels and how they can do a job for you.

Pleased To Meet You

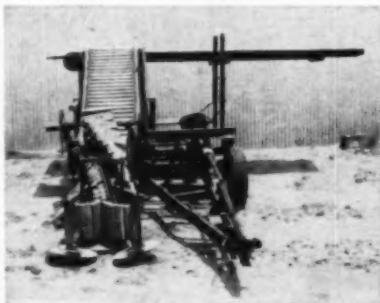
Anco Specialty Company has just acquired the manufacturing rights of the vegetable machinery division of The American Specialty Company. This division has been manufacturing special vegetable washing equipment for canners, packers, growers, and prepackers since 1930. They are going to expand the present line to include hoppers, bins, chutes, work

New for You

tables, conveying equipment, and ventilating systems. They would like to send a free catalog to all AMERICAN VEGETABLE GROWER readers so that you can see these new products for yourself. Why not drop R. L. Becker, Anco Specialty Company, Amherst, Ohio, a line?

Profit Booster

Although originally constructed for growers as a laborsaver, the new celery harvester is also a profit booster. It assures the marketing of a better quality celery due to the foam rubber conveyor paddles that softly cradle the fresh brittle stalks as they are cut from the field row. The stalks are then gently guided through the trimming saw that rough trims the tops and deposits the stalks on the secondary conveyor. The entire operation of cutting, rough trimming, and



placing the celery in field crates takes less than one minute. Thus, the time that the celery is exposed to the sun and wind is cut to a minimum. The harvester can be towed and powered by any two-plow rated tractor equipped with power take-off. The use of standard parts makes maintenance worries and operational shut-downs a thing of the past. During the introductory period, our readers can arrange for a field demonstration by writing to Joseph Weid, Redwing Celery Harvester Co., 622 Coors Rd., S. W., Albuquerque, N. M.

Economy Plus

We all have a suitable building that can be converted to a cold storage right on our property. It does not have to be of costly construction, but

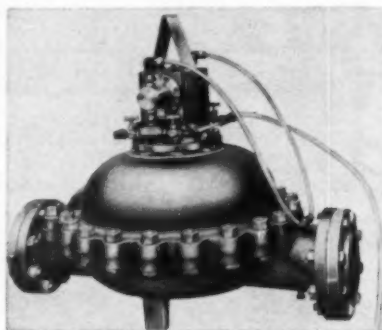
it must be well insulated. That is the key to a good, workable, profitable cold storage. L. R. Kanaga, of Akron, Ohio, can convert almost any kind of farm building into a fruit storage at a cost within your budget, and still enable you to have the right kind of system to properly preserve your fruit. No refrigerant or refrigerating pipes are located in the storage, so there can be no trouble with leaks that might damage the stored fruit. If you will write L. R. Kanaga, inventor of the new, improved air conditioning system, at Industrial Engineering Co., 67 Hurlburt Ave., Akron, Ohio, he will be delighted to send you details.

Stay Put

There's a polyethylene tape you can use in connection with your plastic greenhouse or your packing operation, among a million other uses you will find for it. It has superior adhesive qualities, pull-strength, and quickly peelable split-paper backing for easy application. The dispenser has a built-in cutting edge for greater convenience too. This tape will adhere to plastic, paper, smooth wood, and metal surfaces. Why not ask Joe Simmonds, Gering Plastics, Division of Studebaker-Packard Corporation, N. 7th and Monroe Ave., Kenilworth, N. J., just where you can purchase this Miracle Tape.

Measured Mixture

New Measuremix automatic liquid fertilizer dispensers to fit 3-, 4-, and 6-inch water pipe sizes are now on the market in addition to the 3/4- and 2-inch models. The mixing of the fertilizer and water is automatic and isn't affected by changes in water flow or pressure. The mixing action is accomplished by the flow of water in the pipeline. Fertilizer solution is sucked from open containers and no pressure tanks are required. Smith



Precision Products Company, 1135 Mission St., South Pasadena, Cal., is offering free catalog to all AMERICAN VEGETABLE GROWER readers.

AMERICAN VEGETABLE GROWER



Eastern Shore growers have started their 1961 promotion campaign by electing Suzanne Ballard, Queen Nemagold. Reynold Metals Co. has joined the growers in the campaign.

"SWEET" SUCCESS

(Continued from page 7)

nutrient level. The previous crop grown in the soil and its drain on plant nutrients is closely watched and figures heavily in determining the fertilization program. Sometimes an extra 500 pounds of 5-10-10 is applied broadcast to the rye cover.

At times irrigation has paid off well for Byrd. In the past when

supplemental water was applied he figured the potatoes had already formed and that increased yield resulted from maintaining optimum moisture conditions.

The disk harrow, followed by a grain drill, is a familiar sight in Byrd's fields at harvesttime. The rye cover crop is seeded immediately, restoring within two weeks the familiar green color so characteristic of Byrd's productive sweetpotato soils.



Carlton Byrd is a member of Eastern Shore Grower-Packer Committee of Accomack-Norfolk Sweet Potato Improvement Association. Picture was taken during committee meeting to discuss marketing plans. Pictured, left to right: J. W. Nottingham, Jr., grower-shipper and committee chairman; Byrd; W. R. Acworth, Jr., grower; J. W. Snyder, grower; and W. R. Snyder, grower-shipper. Absent, L. J. Gunter, shipper.

TEXAS

(Continued from page 14)

the diverse climatic situations existing within the state. When the Rio Grande Valley is in peak production of winter vegetables, the Panhandle and Plains may have sub-zero temperatures. Conversely, when the Panhandle and Plains are producing an abundance of many different vegetables, the Rio Grande Valley is too hot for production.

The other areas are intermediate, making it possible to begin production in the Rio Grande Valley, progress in a counterclockwise manner northward through the Coastal Bend,

Brazos Valley, East Texas, Red River Valley, North Texas, Wichita Valley, High Plains and Pecos, Winter Garden, and back to the Rio Grande Valley with production of a number of different crops almost completely around the calendar.

Actually this is not being done—because of those areas which are not yet developed sufficiently, and because there are problems in some of the areas with specific crops which research must solve before around-the-calendar potential can be realized.

Texas vegetable growers are not afraid of the predicted population explosion—they know that they can take care of the vegetable needs of the future.

THE END.



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GREENHOUSE CROPS

Ohio Greenhouse Research

THE greatest acreage of vegetable production under glass in this country is centered in Ohio. It is only natural that Ohio should have an extensive research program in greenhouse vegetable crops.

Bulk of the studies are carried on at the agricultural experiment station at Wooster. Results of current research were recently shown to a group of growers who visited the station.

Experiments to regulate tomato development by adjusting temperature in accordance with available light are being conducted by Dr. K. J. Hood, department of horticulture. The objective is to find optimum temperatures for growth with regard to amount of available light.

Light is the factor which determines degree of temperature to be maintained at any particular time during the day or night. The accumulation of light striking the greenhouse each day is recorded on charts. This total daily accumulation is used to set night temperatures.

The most troublesome disease of greenhouse tomatoes has been tobacco mosaic. Dr. J. J. McRitchie, department of botany and plant pathology, told the growers it is now possible to separate certain viruses into their two component parts, protein and ribonucleic acid (RNA). The complete role of the two fractions is still unknown but it has been found that the component RNA is ineffective by itself.

The host plant has been studied to determine the changes induced by the virus. Differences between susceptible and resistant plants and how a virus can cause disease are still unknown. The presence of one virus may have an effect on a second virus in the same plant. Control of tobacco mosaic may be achieved when the nature of change induced by the first virus is known.

Fungus diseases can generally be controlled in the greenhouse by manipulation of heat, water, and ventilation. Dr. R. E. Partyka, department of botany and plant pathology, recommended use of maneb for tomato leaf mold. Maneb can be applied as a spray at the rate of 2½ pounds of 80% maneb per 100 gallons of water. A dust of 7% maneb, using not over 56 pounds per acre, or mist blower spray not to exceed 4

pounds of actual material (5 pounds of 80% maneb) can also be used.

Two stem rot diseases, Rhizoctonia and Botrytis, have both taken their toll this spring. Dr. Partyka listed 50% captan or a combination of 50% captan and PCNB (terraclor) for preventive control. Captan has a 100 ppm tolerance and can be used at a rate of 2 pounds per 100 gallons of water. It can be applied as a drench or used with PCNB as a drench or dust applied to the soil.

There is no residue problem when captan and PCNB are combined as a preventive measure for Botrytis stem rot. Mix 2 pounds of 75% PCNB and 2 pounds of 50% captan in 100 gallons of water. Apply 1/2 pint of the solution and allow to run down basal part of stem.

Dr. Partyka recommended a pre-plant soil application of 25 pounds of 75% PCNB and 25 pounds of 50% captan mixed with 50 pounds of talc dust at 90 to 100 pounds per acre worked into the soil trench to prevent Botrytis stem rot.

Study of new insecticides for greenhouse vegetables has been a primary job of Dr. R. B. Neiswander, department of entomology. His work helped to obtain label approval for many present-day insecticides.

Dibrom is a new material with low toxicity. Residue disappears in two or three days. It is approved for use on greenhouse tomatoes on a "no-residue" basis. Interval between application and harvest is four days.

Dr. J. A. Naegele, of Cornell University, has shown that dibrom is effective against mites when applied on steam pipes at the rate of 2 fluid ounces of dibrom 4 emulsive per 10,000 cubic feet. It is effective against aphids and cabbage looper.

Nicotine smoke generators can be used to control aphids and thrips. Label approval for greenhouse use permits application on cucumbers and tomatoes up to one day before harvest and on lettuce five days before harvest.—Fred K. Buscher, Cuyahoga County (Ohio) Agent.

Answer to YOU be the EXPERT!

(See page 10)

Aster yellows, a virus disease spread by leafhoppers. Next year Kayler will begin spraying or dusting with DDT or parathion when leafhoppers are first observed in the field. In addition, he will spray his field borders with 2,4-D or similar to destroy perennial weeds that harbor the overwintering virus.

OCTOBER, 1961

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Leafmold (Mildew) and wilt resistant strains for your greenhouse planting program. Developed by Missouri's top tomato breeders. Tuckcross V, O, M, or W; a strain ideal for your region, adapted to glass or plastic.

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Big useable sample piece 10 ft. long by 3 ft. wide. Send \$1.00 cash, check or stamps for this big sample by mail, postpaid

The Vanishing Farm Worker

MORE than 2 million farm workers have vanished from the American labor force in the past 10 years. No Missing Persons Bureau has been notified. No private eye has been called into the case. No posse is out searching the hills. But men, women, and children have gone from the fields and orchards, perhaps never again to be seen in pursuit of agriculture from the rocky farms of New England to the irrigated ranches of California.

The disappearance of farm population in relation to national population during the past 50 years has been widely noted by sociologists and economists. Generally, they have accepted the situation with complacency on the grounds that advanced technology and increased farm mechanization were adequate insurance that the supply of food for the United States would be maintained.

In fact, many sociologists have argued that the farm operator is not leaving the farm fast enough and, by staying with the land, is creating a large class of economically underprivileged entrepreneurs. They point out that per capita income of farm population in 1959 was \$965—including \$321 from non-farm sources—compared to \$2216 for non-farm population.

Yet, American agriculture is cultivating and harvesting food and fiber from 350 million acres, and the situation in 1960 was that year-round there was only one worker for every 50 acres.

In some farm regions, of course, the problem is not serious since machines can do the work of scores of human workers. But specialty crop states like Florida, Texas, and California cannot so readily find adaptable machinery, although they are now engaged in crash automation programs.

As the national farm labor force diminishes—and there is no evidence that the trend is slowing down—some major problems are bound to develop.

For one thing even though most of the 256 commodities produced in the U. S. are in adequate or surplus supply, the American population is growing at a rate which should push past the 230 million mark by 1975. That means agriculture will have to increase materially present production levels.

It is currently estimated that such increased productivity can be obtained from existing cropland by improved techniques. But can such production be obtained with fewer workers—not so much a smaller proportion of the total population as an actual reduction in the number of farm workers?

Can as few as 5 million year-round farm workers produce 4 to 5 pounds of food per day per person in the U. S., plus fibers, tobacco, etc.?

Can the migration off the farm be checked at the critical level of numbers? What inducement will keep an adequate number of people available not only for year-round work but for seasonal labor?

One answer, of course, is farm profit which in turn means a much higher level of food prices for the American consumer. Another is a radical change in the nature of farm labor.

It is obvious that the vanishing farm worker—operator and hired hand—has quit agriculture because rewards have been greater in other phases of the American industrial complex. And the younger generation of farm folk has shown no inclination to return to the farm.

There are no longer waves of immigration to fill jobs of low pay, and the decline in farm prices since 1947 offers little hope that free market revenues will provide margins for the necessary adjustment in wages to compete with industry and commerce.



Automation will certainly eliminate some of the arduous phases of farm work, but can the economics of agriculture naturally adjust to a status of effective competition for labor with commerce and industry where relatively short hours and security benefits are a fixed part of the work pattern?

It appears that only agriculture will attempt to move its goods at a loss. The farmer continues to operate, as he has in most non-war years, in a buyer's market and until some effective system of commodity production

QUOTE-OF-THE-MONTH

"A co-op can no more endure with only half of its members loyal than a nation can endure half slave and half free."

Alton Scofield,
Executive Secretary
Colorado Cooperative Council

control is evolved there doesn't seem any chance he will change the market pattern.

The pattern of disappearance among the farm family worker has been well established. Even on better-than-average farms there is seldom enough income for more than one, or at most two families, so that sons and daughters—some 200,000 a year—quit the farm for urban occupations.

Among the hired farm help families, the pattern is neither as clear-cut nor as satisfactory, particularly in areas which have stressed the usage of migratory and seasonal labor.

Many of them have become fixtured on welfare rolls. Others have switched to part-time labor in construction or industry where layoffs are financed by unemployment insurance. Even the Armed Forces have offered a refuge for many of the younger generation.

If the trend continues, agriculture may have to cope with a critical shortage of workers to produce food long before Society has to deal with a shortage of food itself.

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	On Soil	On Plastic	On Soil	On Plastic
Tomatoes (Fireball Variety—Early Planting) 362		532	506	1176
Muskmelons (Average—6 Varieties) 82		281	233	433
Summer Squash 188		530	675	1067
Slicing Cucumbers 128		289	578	740

Source: Carolus, Michigan State University

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